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CLAIMS

1. An apparatus for underwater sediment management by selective removal of bed material from one area and deposition at another, the apparatus comprising a wholly suspended body connected to and suspended from a support craft orientation means, which, in use, allow orientation of said body with respect to the bed in terms of height, and angle of inclination to the bed while stationary or in transit.
2. An apparatus as claimed in Claim 1 having a bottom face incorporating an outlet flow path in which is coaxially mounted, close to the outlet end, a swirling jet generating means to direct, in use, an unobstructed swirling fluid jet of water downwards towards an area of sea or river bed or the like; said outlet flow path forming part of a centrally located duct with its upper inlet end incorporated wholly within the body; wherein the inlet and outlet flow paths are provided by respective openings in the plane forming the bottom face of the body.
3. An apparatus, as claimed in Claim 1 or Claim 2, wherein the paired inlet openings, located either side of the duct outlet, each comprise an adjustable flow regulator in the form of multiple louvre plates housed within the body, wherein the louvre plates of respective flow regulators being angled in opposite directions thereby causing deflection of the inlet flow helping to reduce the turning moment induced in the body by the rotation of the propeller; said louvre plates also acting as a grillage to prevent ingress of debris.
4. An apparatus, as claimed in any one of Claims 1 to 3, wherein the upper surface of the body is provided with sealable hatch openings to provide man access, but which when sealed make the top and sides of the body air- and water-tight; save only for non-return valves provided in the upper surface that allow egress but not ingress of air.

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5. An apparatus, as claimed in Claim 4, wherein the hatch covers are openable or removable when the body is not operating in shallow water and when inlet flow regulation is not required.

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6. An apparatus, as claimed in any preceding claim, wherein the swirling fluid jet of water is unidirectional and is created by a ducted impeller, which also imparts vortical flow elements to the swirling jet.

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7. An apparatus as claimed in claim 6 wherein said ducted impeller is driven by an hydraulic motor, located co-axially within the duct, and having variable speed control and forward/reverse rotation.

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8. An apparatus, as claimed in any preceding claim, comprising a body adapted to be coupled together with like bodies in a number of different configurations for the purposes of multiple jetting operations.

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9. An apparatus, as claimed in any preceding claim, which can be used in very shallow water by virtue of the inlets being located on the bottom face and the body acting as a syphon.

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10. An apparatus, as claimed in any preceding claim, further comprising a flange plate formed in the bottom surface and surrounding the duct outlet to enable the attachment of a flared nozzle for the purpose of manipulating the swirling jet.

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11. An apparatus comprising a body having a bottom face and comprising an outlet flow path in which is mounted thrust means to direct, in use, a wash of water downwards towards an area of sea or river bed or the like, orientation means to connect said apparatus, in use, to a support means to orientate said apparatus

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5 with respect to the sea or river bed, and at least one inlet flow path through which water is supplied, in use, to the thrust means; characterised in that the inlet flow path and outlet flow path are provided with respective openings in the bottom face of the body; in that at least a portion of the outlet flow path comprises a duct; and in that the thrust means comprises an impeller mounted within the duct; and wherein an adjustable flow regulator is provided adjacent the inlet of the inlet flow path.

10 12. An apparatus as claimed in Claim 12 wherein the flow regulator comprises a louvre assembly.

13. An apparatus as claimed in Claim 11 or Claim 12 wherein the inlet and outlet flow paths are parallel, but of opposite directions.

15 14. An apparatus as claimed in any one of Claims 11 to 13 wherein the duct is formed with an outlet in the undersurface of a central section of the body.

20 15. An apparatus as claimed in any one of Claims 11 to 14 wherein the body is in the form of a wing having an angled face at at least one of the leading and trailing edges thereof.

16. An apparatus as claimed in any one of Claims 11 to 15 wherein the impeller creates a swirling flow comprising embedded vertical flow elements.

25 17. An apparatus as claimed in any one of Claims 11 to 16 wherein the impeller is driven by an hydraulic motor.

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18. An apparatus as claimed in any one of Claims 11 to 17 wherein the duct has a length of about $\frac{2}{3}$ the depth of the apparatus body.

19. An apparatus as claimed in any one of Claims 11 to 18 wherein the duct has an inlet and an outlet and the inlet is formed with a bellmouth.

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